

1960 ANNUAL INDEX

Volume 32—January to December

The September 29 issue was published in two sections identified here as Sept. 29—1 and Sept. 29—2. Section 2 is *The Fasteners Book*.

AUTHOR INDEX

A

Adams, Douglas P.—“Alignment Diagrams from Network Charts,” Sept. 15, p. 175
Aldridge, W., W. B. Shinn, W. F. Popjoy, and R. Neil—“Timers,” Sept. 1, p. 118
Anderson, R. F. and T. F. Raske—“Visualizing Gas Flow,” March 3, p. 142
Aronson, Raphael—“Large-Oscillation Mechanisms,” Nov. 10, p. 190
Arthur, M. E.—“Calculating Weight and Volume,” June 9, p. 185

B

Bachmann, R. W.—“Hydrodynamic Drives, Part 3: Torque Converters,” April 29, p. 130
Bachmann, R. W. and M. W. Dundore—“Hydrodynamic Drives, Part 4: Torque Converters,” May 12, p. 185
Bachmann, R. W. and W. B. Gibson—“Hydrodynamic Drives, Part 2: Torque Converters,” April 14, p. 185
Bachmann, R. W. and H. J. Wirry—“Hydrodynamic Drives, Part 6: Torque Converters,” June 6, p. 178
Bachmann, R. W., H. J. Wirry, and R. C. Schneider—“Hydrodynamic Drives, Part 5: Torque Converters,” May 26, p. 121
Bagnard, G. M.—“Hydraulic Swivel Systems,” March 17, p. 160
Balleisen, Charles E.—“Positioning by Single Rotation,” Jan. 7, p. 216
Barish, Thomas
“Oscillation Life of Ball and Roller Bearings,” Sept. 1, p. 313
“Rolling and Sliding Surfaces,” Oct. 13, p. 189

Barron, Randall F.—“Low-Temperature Properties,” March 17, p. 189
Barry, John K.—“Quick-Operating Fasteners,” Sept. 29—2, p. 78
Bartz, William—“Cycle Sequence Charts,” May 12, p. 185
Beckim, R. W.—“Preparing a Design Handbook,” Aug. 4, p. 104
Bekker, M. G.
“Mobility of Cross-Country Vehicles,
Part 2: Flotation and Motion Resistance,” Jan. 7, p. 145
“Part 3: Track and Wheel Evaluation,” Jan. 21, p. 156
“Part 4: Optimum Performance and Future Trends,” Feb. 4, p. 133
Bemis, H. G. and E. O. Tuttle—“Phenolic-Plastic Ball Bearings,” May 26, p. 143
Benjamin, A. J.—“Color in Plastics,” April 28, p. 120
Bert, Charles W.
“Air-Oil Shock Absorbers,” Dec. 22, p. 132
“Deflections in Stepped Shafts,” Nov. 24, p. 128
“Tilted Rotating Discs,” Dec. 8, p. 184
“Tubular Coil Springs,” Feb. 18, p. 174
Billig, Victor—“Flexures,” Feb. 4, p. 114
Black, F. E.—“Babbitt Bearings,” Feb. 18, p. 163
Blake, Alexander and George Kurasz—“Beams with Partial Uniform Loading,” Nov. 24, p. 155
Bleikamp, R. P.—“The Electromagnetic Drive,” May 12, p. 180
Blume, Martin and L. E. Root—“Roller-Bearing Life,” March 17, p. 165
Borchardt, H. A.—“Brakes,” June 28, p. 163
Braun, Bernhard
“Wire-Race Antifriction Bearings,
Part 1: Types, Features, and Applications,” Nov. 10, p. 164
“Part 2: Load Calculations,” Nov. 24, p. 134

1960 ANNUAL INDEX

Brenner, Harry S.—"Fastener Evaluation," Sept. 29—2, p. 93
 Broasman, S. W.—"Revising the Drafting Manual," Jan. 21, p. 118
 Bulkley, C. W.
 "Designing with Vinyls,
 Part 1: Characteristics of Materials," July 21, p. 142
 Part 2: Vinyl Properties," Aug. 4, p. 147
 Part 3: Forms and Applications," Aug. 18, p. 175

C

Capian, F.—"Thermal Stresses," March 31, p. 141
 Carlyon, George—"Plastic Sleeve Bearings," Oct. 13, p. 168
 Cathers, Lt. (jg) Lincoln D.—"Ships That Sail on Air," July 7, p. 24
 Chapman, F. M., D. O. Saxton, and L. H. Gillespie
 "New Design Data for FEP and TFE,
 Part 1: Strength and Deformation," Jan. 21, p. 126
 Part 2: Thermal, Wear & Electrical Properties," Feb. 18, p. 156
 Church, Austin H.
 "Simplified Vibration Analysis,
 Part 1: Mobility and Impedance Concepts," Feb. 18, p. 130
 Part 2: Single-Degree-of-Freedom Systems," March 3, p. 134
 Part 3: Two-Degree-of-Freedom Systems," March 17, p. 180
 Part 4: Lumped Multiple-Mass Systems," March 31, p. 116
 Part 5: Combination of Subsystems," April 14, p. 179
 Part 6: Beams," April 28, p. 141
 Part 7: Frames, Structures, and Spring-Mounted Beams," May 26, p. 135
 Cooney, J. J. and E. L. Powell—"Mistreatment Engineering," March 3, p. 29
 Crossley, F. R. E.—"Positioning Cams," March 3, p. 121
 Crown, William R.—"Designing Steel Liners," Sept. 1, p. 117
 Csanady, G. T.—"Linkage Dynamics Via Linear Dependence," June 9, p. 173

D

Dahlgren, Victor—"Flexible Printed Circuits," March 17, p. 146
 Daniels, C. M.—"High-Load Oscillating Bearings," July 21, p. 136
 Daniels, C. M. and R. E. Fenton—"Flexible Metal Hose," Oct. 13, p. 195
 Denavit, J. and R. S. Hartenberg—"The Fabulous Air Compressor," July 21, p. 168
 DeVost, V. F.—"Acceleration-Velocity-Distance-Time," Aug. 4, p. 151
 DeVost, V. F. and G. Stathopoulos—"Testing Inertia-Sensitive Devices," March 31, p. 130
 Donovan, Robert O.—"Human-Factors Design on the Bridge," Sept. 1, p. 24
 Dreyfuss, Henry—"Seats for People," Nov. 10, p. 152
 Dundore, M. W. and R. W. Bachmann—"Hydrodynamic Drives, Part 4: Torque Converters," May 12, p. 188

E

Eikelboom, K.—"Rack Teeth for Exact Stroke," Nov. 24, p. 145
 Erbin, E. F.—"Beta Titanium," June 23, p. 152
 Evans, Gloria—"Catalog Files," Sept. 1, p. 133

F

Fenton, R. E. and C. M. Daniels—"Flexible Metal Hose," Oct. 13, p. 195
 Ferrary, F. F. and John E. Nelson—"Critical Speeds Simplified," Aug. 18, p. 152

Findley, William N.—"Creep and Relaxation of Plastics," May 12, p. 205
 Fousek, Joseph J.—"Polyhedrons," May 12, p. 209
 Freudenstein, Ferdinand—"Equivalent Spring Mass," June 23, p. 160
 Fried, George—"Convertible Engineering Organization," March 3, p. 98

G

Gerber, Robert G.—"Four-Gear Combinations," May 26, p. 145
 Gibson, W. B.—"Hydrodynamic Drives, Part 1: Fluid Couplings," March 31, p. 105
 Gibson, W. B. and R. W. Bachmann—"Hydrodynamic Drives, Part 2: Torque Converters," April 14, p. 185
 Gilda, David A.—"Air-Flow Paths," Feb. 18, p. 144
 Gillespie, L. H., D. O. Saxton, and F. M. Chapman
 "New Design Data for FEP and TFE,
 Part 1: Strength and Deformation," Jan. 21, p. 126
 Part 2: Thermal, Wear, and Electrical Properties," Feb. 18, p. 156
 Goodman, Thomas P.
 "Mechanism Design,
 Part 1: Constraint," Nov. 24, p. 122
 Part 2: Toggle Effect," Dec. 8, p. 174
 Part 3: Rotation," Dec. 22, p. 110
 Graff, W. J.—"Thermal Conductance Across Metal Joints," Sept. 15, p. 166
 Gray, Albert Woodruff
 "Fringe Infringers," Sept. 29—1, p. 96
 "Patent Owner's Right," June 23, p. 125
 "What Is a Trade Secret?," March 31, p. 105
 Grey, G. F.—"Weld Fasteners," Sept. 29—2, p. 65
 Groesberg, Sanford W.—"Zero-Gradient Spring System," Jan. 21, p. 143

H

Halicki, Joseph E. and Frank M. Hrachovsky—"Finding Circles Tangent to Two Circles and a Line," March 17, p. 188
 Hanley, Dennis P.—"Vibration Isolation Design," Aug. 4, p. 123
 Hanneman, W. M.
 "How Much Torque Tightens a Screw," Oct. 13, p. 179
 "Washers," Sept. 29—2, p. 54
 Hartenberg, R. S. and J. Denavit—"The Fabulous Air Compressor," July 21, p. 168
 Heilig, Charles E. Jr.—"Blind Rivets," Sept. 29—2, p. 88
 Hirschhorn, J.—"Dynamic Acceleration Analysis," Feb. 18, p. 151
 Hoeschel, Helmut G.—"Calculating Critical Speeds," Feb. 4, p. 141
 Holmes, R. T.—"Emulsion-Type Hydraulic Fluids," Dec. 8, p. 180
 Hrachovsky, Frank M. and Joseph E. Halicki—"Finding Circles Tangent to Two Circles and a Line," March 17, p. 188
 Huffines, Vernon L. and Frank William Wood Jr.
 "Captive-Screw Assemblies," Nov. 10, p. 181
 "Simple Assembly," Oct. 13, p. 187

I

Ibson, R. A.—"Magnetic Mock-ups," July 7, p. 145
 Industrial Fasteners Institute
 "Finishes and Coatings," Sept. 29—2, p. 22
 "Joint Design," Sept. 29—2, p. 28
 "Materials," Sept. 29—2, p. 18
 "Screw Thread Forms," Sept. 29—2, p. 15
 "Standards," Sept. 29—2, p. 12
 "Tapping Screws," Sept. 29—2, p. 45
 "Terminology," Sept. 29—2, p. 6

J

Jarman, Brian D.—“Effective Engineering Writing,” April 14, p. 190
 Johns, Robert A.—“Moment-of-Inertia Charts,” Dec. 8, p. 189
 Johnson, Leonard L.—“The Hydraulic Spring,” May 26, p. 114
 Jordan, John—“Thermal Expansion of Elastomers,” Jan. 7, p. 144

K

Kaplan, I. Leonard
 “Controlling Pressure,” Aug. 18, p. 155
 “Pneumatic-Power Systems,
 Part 1: Applications and Component Selection,” June 23, p. 120
 Part 2: Directional Control and Circuit Selection,” July 7, p. 123
 Karger, Delmar W. and Robert G. Murdick—“Product Planning,”
 March 31, p. 94
 Kasten, Walter—“Filter Materials,” April 28, p. 151
 Kaufman, Roger A. and Morris I. Kaufmann—“Predicting Reliability,”
 Aug. 18, p. 178
 Kaufmann, Morris I. and Roger A. Kaufman—“Predicting Reliability,”
 Aug. 18, p. 178
 Kilcoin, John A.—“Industrial Pushbuttons,” Nov. 10, p. 197
 Klees, Gerard T.
 “Beam Vibrations,” Nov. 10, p. 205
 “Fastener Vibration,” July 21, p. 171
 “Fastener Vibration,” Sept. 29—2, p. 91
 “Plate Vibrations,” Dec. 22, p. 139
 Kostur, Robert E.—“Thermoforming Techniques”, March 31, p. 142
 Kotnik, Robert L.—“Electromagnetic Disc Clutches,” Aug. 4, p. 113
 Krivka, Herbert A.—“Make Your Own Thermocouples,” June 9, p. 184
 Krotz, Alvin S.—“Elastomers,” Nov. 24, p. 146
 Kull, Francis R.—“Set Screws,” Sept. 29—2, p. 58
 Kurasz, George and Alexander Blake—“Beams with Partial Uniform
 Loading,” Nov. 24, p. 155

L

Langdon, H. Reed—“Planetary Gear Ratios,” April 28, p. 161
 Lange, Janusz—“Pictorial Drawings,” Dec. 8, p. 154
 Liu, Chen Ya—“Curved Beams,” Sept. 1, p. 145
 Loria, Edward A.—“Evaluating High-Strength Steels,” Feb. 4, p. 120

M

Manson, S. S.
 “Thermal Stresses in Design,
 Part 17: Determining a Safe Working Stress,” June 9, p. 159
 Part 18: Working Stresses for Ductile Materials,” June 23, p. 153
 Part 19: Cyclic Life of Ductile Materials,” July 7, p. 139
 Part 20: Thermal Cycling with Steady Stress,” July 21, p. 161
 Part 21: Effect of Mean Stress and Strain on Cyclic Life,” Aug.
 4, p. 129
 Part 22: Cumulative Fatigue Damage,” Aug. 18, p. 160
 Marvin, Philip
 “Multiply Your Effectiveness,” Oct. 13, p. 148
 “Revitalizing the Engineering Organization,” May 12, p. 170
 “Spending for Product Development,” Dec. 22, p. 94
 Marx, Robert—“Plastics for Extrusions,” March 3, p. 143
 Mayer, Ehrhard—“Leakage and Wear in Mechanical Seals,” March 3,
 p. 106
 McClure, James G.—“The Prestressed Bolt,” Sept. 15, p. 173
 Menton, Arthur Francis—“Spotwelded Electronics,” July 21, p. 26

Middleton, George W.—“Slider-Crank Whip,” Aug. 4, p. 144
 Morgan, John P.—“Testing at High Heat Rates,” Jan. 21, p. 138
 Munsey, R. J.—“Wire-Formed Retaining Rings,” Sept. 29—2, p. 85
 Murdick, Robert G.
 “Engineering Administration,” July 7, p. 100
 “Planning the Engineering Office,” Aug. 18, p. 138
 Murdick, Robert G. and Delmar W. Karger—“Product Planning,”
 March 31, p. 94
 Murdick, R. G. and G. L. Smallwood—“Training Engineers on the
 Job,” Dec. 8, p. 140
 Murphy, R. G.—“Organic Finishes,” June 9, p. 136
 Musser, C. W.—“The Harmonic Drive,” April 14, p. 166

N

Neill, R., W. B. Shinn, W. F. Popjoy, and W. Aldridge—“Timers,”
 Sept. 1, p. 118
 Nelson, John E. and F. F. Ferry—“Critical Speeds Simplified,”
 Aug. 18, p. 152
 Newman, Arthur S. Jr. and J. Ronald Wickey—“AC Motor Control,
 Part 1: Squirrel-Cage Motors,” Dec. 22, p. 100
 Nightingale, J. M.
 “Self-Optimizing Control Systems,
 Part 1: Basic Circuits,” Sept. 1, p. 140
 Part 2: Multiple-Parameter Control,” Sept. 15, p. 198
 Part 3: Dynamic Analysis,” Sept. 29—1, p. 133
 “Self-Optimizing Servo Circuits,” Jan. 7, p. 139

O, P

Oest, Louis—“Tapping Screws,” March 3, p. 114
 Pauli, J.—“Pulley Diameter vs. Wire Size,” Sept. 1, p. 205
 Perry, C. C.—“The Least Squares Method,” May 12, p. 210
 Popjoy, W. F., W. B. Shinn, R. Neill, and W. Aldridge—“Timers,”
 Sept. 1, p. 118
 Powell, E. L. and J. J. Cooney—“Misreatment Engineering,”
 March 3, p. 29

R

Radzimovsky, Eugene—“Planetary Gear Systems,” Sept. 15, p. 190
 Raske, T. F. and R. F. Anderson—“Visualizing Gas Flow,” March
 3, p. 142
 Raudsepp, Eugene
 “Climate for Creativity,” July 21, p. 122
 “The Engineer: Paragon or Paradox? Part 3: His Interests,” Jan.
 7, p. 25
 “Why Engineers Work,” Feb. 4, p. 100
 Renner, E. J.—“Belt Pulley Crown,” Sept. 29—1, p. 106
 Riske, G. I.—“Flow Factors,” April 14, p. 154
 Root, L. E. and Martin Blume—“Roller-Bearing Life,” March 17,
 p. 165
 Rosen, Harold and Eugene D. Veilleux—“Designing Damping into
 Laminated Structures,” Feb. 4, p. 24
 Rudisill, E. L.—“Static-Control Shift Registers,” June 23, p. 140
 Rumbarger, John H.—“X-type Roller Bearings,” Sept. 29—1, p. 110

S

Sabanas, Mitchell—“Medical Engineering,” March 3, p. 24

Sando, Robert M.
 "Compressibility of Fluids," Sept. 29-1, p. 137
 "Cooling by Evaporation," Feb. 4, p. 147

Saxton, D. O., L. H. Gillespie, and F. M. Chapman
 "New Design Data for FBP and TFE,"
 Part 1: Strength and Deformation," Jan. 21, p. 126
 Part 2: Thermal, Wear, and Electrical Properties," Feb. 18, p. 156

Seavuzzo, J. J.—"Wrapping Up High Pressures," Jan. 21, p. 26

Schmidt, Edgar—"Continuous Cam Curves," Jan. 7, p. 127

Schneider, R. C., H. J. Wirry, and R. W. Bachmann—"Hydrodynamic Drives, Part 5: Torque Converters," May 26, p. 121

Scott, Alex—"Locknuts," Sept. 29-2, p. 51

Seminara, Joseph L.—"Control-Movement Direction," April 14, p. 191

Shinn, W. B., W. F. Popjoy, R. Nell, and W. Aldridge—"Timers," Sept. 1, p. 118

Shuster, Jacob—"Planetary Drives," July 7, p. 147

Simonton, D. P.—"The Design Review Program," Nov. 24, p. 112

Smallwood, G. L. and R. G. Murdick—"Training Engineers on the Job," Dec. 8, p. 140

Smith, J. N.—"Adapters for V-Ring Packings," March 31, p. 138

Smith, Marshall C.—"Geneva Mechanisms," Jan. 21, p. 163

Smith, R. V.—"Normal Error," Sept. 15, p. 201

Sobelman, Sidney—"Speeding Product Development," April 14, p. 144

Soled, Julius—"Sealing Fasteners," Sept. 29-2, p. 62

Spector, Leo F.—"Pin Fasteners," Sept. 29-2, p. 70

Spencer, Lester F.
 "Conversion Coatings,"
 Part 1: Processes," Sept. 15, p. 154
 Part 2: Design Considerations," Sept. 29-1, p. 123
 "Heat Treatment of Steels,"
 Part 1: Heat-Treatment Methods," Dec. 8, p. 160
 Part 2: Steel Selection," Dec. 22, p. 120

Stanley, Reginald E.
 "Functional Tolerancing," Sept. 1, p. 102
 "Tolerancing with Schematics," Oct. 13, p. 183

Stathopoulos, G. and V. F. DeVost—"Testing Inertia-Sensitive Devices," March 31, p. 130

Stern, D.—"Critical Damping Ratio," July 7, p. 136

Stock, A. J.—"PTFE Dispersion Coatings," Dec. 8, p. 151

Strasser, Federico
 "Crimp Joints," Oct. 13, p. 166
 "Folded Fastening," April 28, p. 138

Strauss, Eric L.—"Mechanical Joints in Reinforced Plastic Structures," March 17, p. 197

Tauscher, E. F.—"Cold Heading," Aug. 18, p. 185

Thomas, A. M.—"The Product Design Review Committee," Jan. 7, p. 112

Tsien, T. C.—"Tubular Shaft Design," Sept. 29-1, p. 128

Tubular and Split Rivet Council—"Small Rivets," Sept. 29-2, p. 75

Tuttle, E. O. and H. G. Benis—"Phenolic-Plastic Ball Bearings," May 26, p. 143

Tuttle, S. B.—"Error Analysis," June 9, p. 152

V

Vaientich, J.—"Simple Slip Rings," Jan. 7, p. 154

Veilleux, Eugene D.—"Galvanic Corrosion," Feb. 18, p. 181

Veilleux, Eugene D. and Harold Rosen—"Designing Damping into Laminated Structures," Feb. 4, p. 24

W

Waltermire, W. G.
 "Coarse or Fine Threads?" March 17, p. 134
 "Studs," Sept. 29-2, p. 48

Webb, Maurice J.—"Quadratics—Cubics—Quartics," Sept. 15, p. 203

Weber, Theodore Jr.—"Cam Dynamics via Filter Theory," Oct. 13, p. 160

Wheeler, H. L. Jr.—"Hydraulic Filters," July 21, p. 147

Wickey, J. Ronald and Arthur S. Newman Jr.—"AC Motor Control, Part 1: Squirrel-Cage Motors," Dec. 22, p. 100

Wilkinson, William H.—"Planetary Gear Trains," Jan. 7, p. 155

Wilson, Geoffrey W.—"Energy Conversion Processes," Aug. 18, p. 189

Wirry, H. J. and R. W. Bachmann—"Hydrodynamic Drives, Part 6: Torque Converters," June 9, p. 178

Wirry, H. J., R. W. Bachmann, and R. C. Schneider—"Hydrodynamic Drives, Part 5: Torque Converters," May 26, p. 121

Wood, Frank William Jr.
 "Knobs," May 26, p. 118
 "Mounting Servo Components," March 31, p. 113

Wood, Frank William Jr. and Vernal L. Huffines
 "Captive-Screw Assemblies," Nov. 10, p. 181
 "Simple Assembly," Oct. 13, p. 187

Worley, Will J.—"Converting Curves to Straight Lines," Nov. 10, p. 173

Wurzel, Hugo F.—"Stamped Retaining Rings," Sept. 29-2, p. 81

SUBJECT INDEX

A

Acceleration, Aug. 4, p. 151

Acceleration analysis, Feb. 18, p. 151

Accelerometers, Oct. 27, p. 206; Nov. 24, p. 232; Dec. 22, p. 173

Actuators, Feb. 18, p. 306; April 14, p. 293; May 13, p. 243, 458; May 26, p. 204; June 9, p. 252; June 23, p. 197, 252; Nov. 24, p. 196, 228, 232; Dec. 8, p. 249; Dec. 22, p. 130, 172

Adapters, for v-ring packings, March 31, p. 138

Adhesives, Feb. 18, p. 218; March 17, p. 236; March 31, p. 158; April 14, p. 194, 252; May 12, p. 231, 260, 316, 368; June 9, p. 245; June 23, p. 195; July 21, p. 196; Aug. 4, p. 179, 188; August 18, p. 263; Sept. 1, p. 170; Sept. 15, p. 268; Sept. 29-1, p. 152, 168; Oct. 13, p. 246, 281; Oct. 27, p. 179; Nov. 10, p. 262, 271; Dec. 22, p. 157, 161

Airplanes, Jan. 21, p. 10; Feb. 4, p. 22; March 3, p. 22; March 17, p. 24; March 31, p. 22; April 28, p. 22; Dec. 8, p. 41

Alignment diagram, Sept. 15, p. 175

Alloys, high-temperature, Feb. 18, p. 184; April 14, p. 217

Aluminant, July 21, p. 24

Aluminum and alloys, Feb. 18, p. 26; April 14, p. 188; May 26, p. 42; July 7, p. 34; Sept. 29-2, p. 20; Nov. 10, p. 39

Amplifiers, March 3, p. 177; May 12, p. 400; June 23, p. 129; July 7, p. 133; Aug. 4, p. 172; Dec. 22, p. 106

Atomic energy, March 3, p. 22, 23; March 17, p. 22; April 28, p. 23, 26, 34; May 12, p. 22

Atomic research, Jan. 21, p. 6; Feb. 18, p. 22, 23

Automobiles, Jan. 7, p. 6, 36; Feb. 4, p. 32; March 17, p. 22, 32; March 31, p. 22; April 14, p. 23, 39; April 28, p. 32, 158; May 12, p. 40; May 26, p. 22; July 7, p. 22; Sept. 15, p. 22

compact, Jan. 21, p. 8

1961 models, Sept. 29-1, p. 24; Oct. 13, p. 24

Awards, Jan. 7, p. 22

B

Balls, Feb. 18, p. 218; July 21, p. 192

Batteries, Jan. 7, p. 133; April 14, p. 238; April 28, p. 23; June 9, p. 214; Dec. 8, p. 236

Beam vibrations, Nov. 10, p. 205

Beams, Nov. 24, p. 155

Bearing areas, Sept. 29-2, p. 6

Bearing strength, Sept. 29-2, p. 30

Bearings,

ball, Jan. 7, p. 206; March 3, p. 160; March 31, p. 154; April 14, p. 202; May 12, p. 225; July 7, p. 164; July 21, p. 251; Sept. 15, p. 253, 266

high-load oscillating, July 21, p. 136

hydrodynamic, Sept. 15, p. 162

oscillation life, Sept. 1, p. 113

phenolic-plastic, May 26, p. 143

plastic sleeve, Oct. 13, p. 168

pneumostatic, May 26, p. 151

roller, Jan. 21, p. 122; Feb. 18, p. 222; March 17, p. 165; March 31, p. 150; May 12, p. 221, 233; May 26, p. 155; Sept. 15, p. 224; Dec. 8, p. 232

sleeve, Feb. 18, p. 163, 219; April 28, p. 188; May 12, p. 229, 237, 239; June 9, p. 197; June 23, p. 195, 213; Aug. 4, p. 180; Sept. 1, p. 164; Sept. 15, p. 260; Sept. 29-1, p. 156; Nov. 24, p. 183, 288; Dec. 22, p. 175

thrust, Feb. 18, p. 195; May 12, p. 234, 236; June 23, p. 128, 190; July 21, p. 181; Nov. 10, p. 165

wire-race, Aug. 18, p. 30; Nov. 10, p. 164; Nov. 24, p. 134

x-type roller, Sept. 29-1, p. 110

Bellows, May 26, p. 170; June 9, p. 246; July 21, p. 132; Nov. 10, p. 159; Dec. 8, p. 147

Belts, conveyor, Nov. 10, p. 258

polyester-film, Oct. 27, p. 137

pulley crowns, Sept. 29-1, p. 106

transmission, Feb. 18, p. 244, 264; March 17, p. 174; March 31, p. 164; April 14, p. 237; April 28, p. 127; May 12, p. 232; Sept. 15, p. 25, 271; Nov. 24, p. 192

Bend test, Sept. 29-2, p. 95

Beryllium, May 12, p. 252; July 21, p. 181

Beta titanium, June 23, p. 132

Binding head, Sept. 29-2, p. 7

Black-box flight, Aug. 18, p. 26

Blowers, Feb. 18, p. 255; March 31, p. 163; April 28, p. 102; June 23, p. 214; July 7, p. 166; July 21, p. 212; Nov. 10, p. 262, 264, 297; Dec. 8, p. 240

Bolted joints, design, Sept. 29-2, p. 30

Bolts, design examples, Sept. 29-2, p. 40

general, Sept. 29-2, p. 6

head styles, Sept. 29-2, p. 7

joint design, Sept. 29-2, p. 30

prestressed, concepts of, Sept. 15, p. 173

selection nomogram for, Sept. 29-2, p. 36

shear strength, Sept. 29-2, p. 35

shock-loaded, Sept. 29-2, p. 39

standard styles, Sept. 29-2, p. 8

steel grades, Sept. 29-2, p. 18

stress areas, Sept. 29-2, p. 28

tensile strength, Sept. 29-2, p. 35

thread forms, Sept. 29-2, p. 15

torque, Sept. 29-2, p. 32

Books, Jan. 7, p. 202; Jan. 21, p. 244; Feb. 4, p. 209; Feb. 18, p. 277; March 3, p. 297; March 17, p. 297; March 31, p. 169; April 14, p. 277; April 28, p. 233; May 12, p. 430; May 26, p. 198; June 9, p. 278; June 23, p. 242; July 7, p. 203; July 21, p. 244; Aug. 4, p. 196; Aug. 18, p. 276; Sept. 1, p. 182; Sept. 15, p. 316; Sept. 29-1, p. 186; Oct. 13, p. 320; Oct. 27, p. 211; Nov. 10, p. 308; Nov. 24, p. 222; Dec. 8, p. 279; Dec. 22, p. 167

Brakes, Jan. 7, p. 188; Feb. 4, p. 130; Feb. 18, p. 221, 226; March 31, p. 156; April 14, p. 151; May 12, p. 224, 239, 444; June 9, p. 282; June 23, p. 163; July 7, p. 164; Aug. 4, p. 137, 172, 199, 202; Aug. 18, p. 216; Sept. 29-1, p. 158; Oct. 13, p. 285, 338; Nov. 10, p. 279; Dec. 8, p. 242, 283, 286

Burners, May 26, p. 111

Bushings, March 17, p. 224; April 14, p. 242; May 12, p. 227; May 26, p. 30; Oct. 27, p. 203

Buttress thread, Sept. 29-2, p. 6

C

Cameras,
high speed, Feb. 18, p. 266; May 12, p. 200; July 7, p. 131
motor-driven, Jan. 21, p. 156

Cams, Jan. 7, p. 127; March 3, p. 121, 158; April 14, p. 152; May 26, p. 128; July 7, p. 156; Aug. 18, p. 146; Sept. 15, p. 188
design for computers, Oct. 27, p. 145
dynamics, Oct. 13, p. 160

Capacitors, March 3, p. 106; March 17, p. 251, 275; March 31, p. 156; April 28, p. 202; May 12, p. 351, 365, 378; May 26, p. 172; June 23, p. 208, 221; July 21, p. 235; Aug. 18, p. 22, 214; Sept. 15, p. 276, 290; Oct. 13, p. 332

Caps, March 17, p. 260

Carburetors, Nov. 10, p. 260

Casters, May 12, p. 224; Sept. 29-1, p. 173

Castings,
die, June 9, p. 23; Sept. 29, p. 32; Dec. 22, p. 146
investment, April 14, p. 212
iron, June 9, p. 198
nonferrous, May 12, p. 238
short run, Sept. 29-1, p. 140
steel, Feb. 4, p. 36; Sept. 1, p. 150

Catalog file, Sept. 1, p. 133

Ceramics, May 12, p. 22, 241; Dec. 8, p. 265
high strength, Oct. 27, p. 122

Chain,
conveyor, May 12, p. 235
transmission, March 3, p. 179; June 9, p. 219

Chemicals, Jan. 7, p. 22

Chromate treatment, Sept. 29-2, p. 26

Circuit breakers, May 12, p. 333; June 9, p. 282; Aug. 18, p. 258; Sept. 15, p. 260; Oct. 27, p. 116

Clamps, Jan. 7, p. 179; Feb. 4, p. 214; March 3, p. 163; April 28, p. 214; June 23, p. 190; Aug. 18, p. 233, 253; Sept. 15, p. 250; Sept. 29-1, p. 166; Oct. 27, p. 200; Nov. 10, p. 267, 277; Nov. 24, p. 210; Dec. 8, p. 260

Class, thread, Sept. 29-2, p. 6

Climate for creativity, July 21, p. 122

Clinch, Sept. 29-2, p. 77

Clutch recess, Sept. 29-2, p. 10

Clutches, Jan. 7, p. 120; Jan. 21, p. 125; Feb. 4, p. 110; Feb. 18, p. 216, 221, 226, 236; March 17, p. 242; March 31, p. 156; April 14, p. 174, 293; May 12, p. 224, 241, 440, 441; June 9, p. 212, 220; June 23, p. 199; July 7, p. 184; July 21, p. 182, 192, 211; Aug. 4, p. 172, 199; Aug. 18, p. 214; Sept. 1, p. 160; Sept. 15, p. 254, 268, 327, 328; Sept. 29—1, p. 158; Oct. 13, p. 332; Oct. 27, p. 218, 223; Nov. 10, p. 279; Dec. 5, p. 169, 264, 283, 286

electromagnetic disc, Aug. 4, p. 113

Coarse thread, Sept. 29—2, p. 16, 30

Coatings,
conductive, March 31, p. 102
conversion, Sept. 15, p. 154; Sept. 29—1, p. 123
decorative, May 12, p. 228, 271
dispersion, Nov. 8, p. 151
protective, Feb. 4, p. 8, 12, 188; Feb. 18, p. 26; May 12, p. 228, 386; May 26, p. 155; June 9, p. 248, 264; July 7, p. 22, 34, 155, 167; Aug. 4, p. 22, 163; Aug. 18, p. 268; Oct. 13, p. 243; Oct. 27, p. 196; Dec. 22, p. 154

Coding system, Aug. 18, p. 168

Collet, Nov. 10, p. 159

Color in plastics, April 28, p. 120

Compressibility of fluids, Sept. 29—1, p. 137

Compressors, March 17, p. 205; Aug. 18, p. 172; Dec. 8, p. 42

Computers, Jan. 7, p. 39; Jan. 21, p. 32; Feb. 4, p. 27, 204; Feb. 18, p. 168; March 17, p. 23, 206; March 31, p. 23, 149; April 14, p. 22, 34, 273; April 28, p. 43, 181, 198; May 12, p. 23, 393; June 9, p. 22; June 23, p. 152, 176, 238; July 7, p. 107, 157, 198; July 21, p. 38, 181; Aug. 18, p. 41, 198, 207; Sept. 1, p. 34; Sept. 15, p. 23, 33; Sept. 29—1, p. 145; Oct. 13, p. 215, 300; Oct. 27, p. 23, 113, 162; Nov. 10, p. 28; Nov. 24, p. 22 components, Feb. 4, p. 173, 178; Feb. 18, p. 233, 261

Conductors, Sept. 15, p. 281

Connectors, electric, Feb. 4, p. 157; Feb. 18, p. 225, 230; April 28, p. 188; May 12, p. 224, 302, 346, 358; June 23, p. 222; July 7, p. 170; July 21, p. 194, 212; Aug. 18, p. 200; Sept. 1, p. 167; Sept. 15, p. 253, 281, 290; Oct. 13, p. 230, 251; Oct. 27, p. 197; Nov. 10, p. 280; Nov. 24, p. 178; Dec. 8, p. 256, 264

Contactors, Jan. 7, p. 123; Sept. 1, p. 108

Contacts, June 23, p. 131, 170; Aug. 18, p. 151

Control systems, June 23, p. 145
electric, Feb. 4, p. 196; Aug. 18, p. 170; Sept. 1, p. 23
pneumatic, July 21, p. 30; Aug. 18, p. 285
self-optimizing, Sept. 1, p. 140; Sept. 15, p. 198; Sept. 29—1, p. 133

Controlling pressure, Aug. 18, p. 155

Control-movement direction, April 14, p. 191

Controls,
electric, Feb. 4, p. 28, 132; April 28, p. 179, 214; May 12, p. 179, 202, 254, 266; June 23, p. 248; July 7, p. 108; Oct. 13, p. 244; Dec. 8, p. 232; Dec. 22, p. 100
hydraulic, Feb. 4, p. 111; Feb. 18, p. 260, 308, 310; March 3, p. 105; March 17, p. 173; April 28, p. 242; May 12, p. 226, 316; June 23, p. 194; July 21, p. 217; Aug. 18, p. 263; Sept. 15, p. 185; Oct. 27, p. 216
mechanical, Feb. 4, p. 188; April 28, p. 244; May 12, p. 204, 236; July 7, p. 110
pneumatic, Feb. 18, p. 170; March 31, p. 101; July 21, p. 217; Sept. 15, p. 326; Oct. 27, p. 216

Converters, March 3, p. 177; July 7, p. 40; Sept. 1, p. 34; Oct. 13, p. 306; Nov. 24, p. 139
torque, April 14, p. 185; April 28, p. 130; May 12, p. 188; May 26, p. 121; June 9, p. 178

Conveyors, Oct. 27, p. 114; Nov. 10, p. 188
systems, Oct. 13, p. 175

Cooling, Sept. 29—1, p. 145
evaporative, Feb. 4, p. 147
thermoelectric, Feb. 4, p. 36

Cooling systems, Nov. 10, p. 318

Copper and alloys, Feb. 18, p. 243; May 12, p. 230, 276, 313; Aug. 18, p. 231; Sept. 29—2, p. 20, 21; Oct. 13, p. 211

Corrosion, Sept. 29—2, p. 27

Corrosion guide, Sept. 29—2, p. 24, 25

Corrosion-resistant alloys, Feb. 18, p. 181
heavy duty, Sept. 29—2, p. 74

Counters, Feb. 18, p. 233, 255; March 3, p. 161; March 17, p. 252; March 31, p. 159; April 14, p. 246, 248; June 9, p. 234; June 23, p. 193; July 21, p. 230; Aug. 4, p. 142; Aug. 18, p. 239; Sept. 15, p. 246; Oct. 13, p. 290, 331; Dec. 8, p. 234, 249, 265

Couplings, fluid flow, Jan. 7, p. 195; May 12, p. 227, 235, 237, 313; Sept. 29—1, p. 160, 178; Oct. 13, p. 155, 237, 243; Oct. 27, p. 178; Dec. 8, p. 237

shaft, Jan. 7, p. 176; Feb. 4, p. 113, 184; Feb. 18, p. 232, 247; March 3, p. 155; March 17, p. 145, 302; March 31, p. 171; April 14, p. 234; May 12, p. 225, 233, 297; June 9, p. 284; July 21, p. 154, 192, 202; Aug. 4, p. 189; Sept. 1, p. 166; Sept. 15, p. 257; Nov. 10, p. 250; Nov. 24, p. 174; Dec. 8, p. 261, 284, 287; Dec. 22, p. 175

Crest, thread, Sept. 29—2, p. 9

Crimp joints, Oct. 13, p. 166

Critical damping ratio, July 7, p. 136

Critical speeds, Aug. 18, p. 152

Critical-speed calculations, Feb. 4, p. 141

Cryogenics, July 7, p. 37

Crystals, refractory, Jan. 21, p. 22

Curve plots, conversion of, Nov. 10, p. 173

Curved beams, Sept. 1, p. 145

Cutting machine, tracer, Jan. 21, p. 150

Cycle sequence charts, May 12, p. 185

Cylinders,
hydraulic, Jan. 7, p. 193; Feb. 4, p. 128, 182; Feb. 18, p. 141; March 3, p. 175, 186; March 17, p. 302; March 31, p. 161; April 14, p. 264, 271; April 28, p. 191, 238; May 12, p. 338; June 9, p. 224; June 23, p. 197, 227; Aug. 18, p. 220; Sept. 15, p. 184; Oct. 13, p. 265, 297
pneumatic, Feb. 18, p. 216, 242; March 3, p. 175; March 17, p. 234; March 31, p. 161; April 14, p. 232, 264; April 28, p. 191, 212; May 12, p. 361, 382; June 23, p. 197, 227; Oct. 13, p. 287; Nov. 10, p. 258, 268; Nov. 24, p. 176; Dec. 8, p. 288; Dec. 22, p. 154

D

Damping, structural vibration, Feb. 4, p. 24

Decarburized thread, Sept. 29—2, p. 9

Deflections in stepped shafts, Nov. 24, p. 128

Design handbook, Aug. 4, p. 104

Designing with vinyls, Aug. 4, p. 147; Aug. 18, p. 175

Destructive testing, Sept. 29—2, p. 94

Detector, liquid, Nov. 10, p. 161

Detent mechanisms, Jan. 21, p. 124

Dials, March 31, p. 156; June 9, p. 227; June 23, p. 199; Sept. 1, p. 162; Nov. 10, p. 256

Differential pressure, Sept. 29—2, p. 64

Differential-pressure transmitters, Oct. 13, p. 200

Differentials, Jan. 7, p. 136; July 7, p. 168; Nov. 24, p. 174

gear, March 31, p. 154, 160; May 26, p. 200

mechanical, May 12, p. 242

Diodes, June 23, p. 213; July 7, p. 180

Domestic appliances, May 12, p. 30

Drafting equipment, Jan. 7, p. 199; Feb. 4, p. 23, 203, 206; March 17, p. 179, 284, 288; April 14, p. 272, 275; April 28, p. 228, 232; May 12, p. 225, 231, 234, 238, 397, 398; May 26, p. 195, 197; June 23, p. 124, 238, 240; July 7, p. 196; July 21, p. 240; Aug. 4, p. 194, 195; Aug. 18, p. 269; Sept. 15, p. 296, 299, 302; Sept. 29—1, p. 183; Oct. 13, p. 302; Oct. 27, p. 208; Nov. 10, p. 304, 307; Nov. 24, p. 215, 221; Dec. 8, p. 272, 273, 275; Dec. 22, p. 165, 166

Drafting manual revision, Jan. 21, p. 118

Drafting techniques, Jan. 21, p. 121; Feb. 4, p. 109; Feb. 18, p. 139, 150, 155, 165, 180; March 3, p. 113, 147; March 17, p. 164, 188, 195; April 14, p. 184; April 28, p. 137, 150; June 23, p. 169; July 21, p. 130, 167; Aug. 4, p. 135; Aug. 18, p. 154; Sept. 15, p. 204; Oct. 27, p. 121, 155; Nov. 24, p. 116, 137; Dec. 8, p. 167, 188

Driveability test, Sept. 29—2, p. 95

Driving recesses, Sept. 29—2, p. 10

Drives,

adjustable speed, Feb. 18, p. 308; March 17, p. 258, 272, 278; April 28, p. 172, 201; May 12, p. 230, 233, 236, 268; June 23, p. 222, 234; July 7, p. 184; July 21, p. 252; Aug. 4, p. 176, 183; Aug. 18, p. 237; Sept. 1, p. 182; Sept. 15, p. 292; Oct. 13, p. 284, 290; Oct. 27, p. 112; Nov. 10, p. 30, 292; Dec. 8, p. 256

electromagnetic, May 12, p. 180

harmonic, April 14, p. 160

hydraulic, Dec. 22, p. 142

hydrodynamic, May 26, p. 121

marine, Nov. 10, p. 30

planetary, July 7, p. 147

right angle, May 12, p. 288

Ducts, Jan. 7, p. 184; April 28, p. 208; June 9, p. 234

E

Eccentric shear load, Sept. 29—2, p. 43

Edge distance, Sept. 29—2, p. 89

Education, engineering, Jan. 7, p. 23

Elastomers, Nov. 24, p. 146

Electronic design, Jan. 7, p. 166

Electronic equipment, Jan. 21, p. 9, 8, 10, 14; Feb. 4, p. 8, 23, 30, 132, 202; Feb. 18, p. 235; March 3, p. 23, 27, 132, 164, 168, 181; March 17, p. 23, 34, 38, 205, 264; March 31, p. 39, 167; April 14, p. 36, 239, 260, 271, 274, 276; April 28, p. 25, 34, 199, 207, 230; May 12, p. 34, 222, 243, 396; May 26, p. 130, 195; June 9, p. 36, 149, 241; June 23, p. 32, 127; July 7, p. 28, 40, 42; July 21, p. 26, 156, 192, 209; Aug. 4, p. 34, 109, 136; Sept. 15, p. 244, 323; Sept. 29—1, p. 117; Oct. 13, p. 254; Nov. 10, p. 159, 189; Nov. 24, p. 165, 216, 220; Dec. 8, p. 262

molecular, Feb. 18, p. 24

packaging, Feb. 4, p. 24

Electroplating, Sept. 29—2, p. 22

Enclosures, March 17, p. 262

Energy conversion processes, Aug. 18, p. 189

Engineering administration, July 7, p. 100

Engineering data, evaluation, Nov. 10, p. 173

Engineering library costs, Oct. 27, p. 108

Engineering office planning, Aug. 18, p. 138

Engineering organization, May 12, p. 170
convertible, March 3, p. 98

Engineering technician, May 12, p. 24; May 26, p. 25; June 9, p. 25; June 23, p. 25; Sept. 1, p. 28; Sept. 15, p. 23

Engineering unions, Nov. 10, p. 24

Engineering writing, April 14, p. 190

Engineers, March 3, p. 26; March 17, p. 22, 32; March 31, p. 22; April 14, p. 22; April 28, p. 23; May 12, p. 22, 32; July 21, p. 41; Aug. 4, p. 22, 39, 40; Aug. 18, p. 22; Sept. 1, p. 22; Sept. 29—1, p. 32; Oct. 27, p. 22, 160; Nov. 24, p. 22; Dec. 8, p. 22

interest, Jan. 7, p. 25

job motivation, Feb. 4, p. 100

Engines, Jan. 7, p. 14; Feb. 18, p. 195; March 17, p. 26; March 31, p. 26, 30; April 28, p. 158; July 7, p. 153; Aug. 18, p. 202; Sept. 15, p. 33; Nov. 10, p. 182; Dec. 22, p. 146

small diesel, Sept. 15, p. 208

Equations,
from curve plots, Nov. 10, p. 173
solution, Sept. 15, p. 203

Equivalent spring mass, June 23, p. 160

Error, normal, Sept. 15, p. 201

Error analysis, June 9, p. 152

Evaluation, fasteners, Sept. 29—2, p. 93

Evaporators, Oct. 27, p. 131

F

Fabric parts, Feb. 4, p. 177; Oct. 13, p. 295

Fabulous air compressor, July 21, p. 168

Fans, Sept. 29—1, p. 36

Fastener, material selection, Feb. 4, p. 150

Fastener terminology, Sept. 29—2, p. 7

Fastener vibration, July 21, p. 171

Fasteners (Also, see specific type),

bolts, studs, screws, Jan. 7, p. 122; March 3, p. 158; April 14, p. 153, 246; May 12, p. 228, 290, 310; May 26, p. 168; June 9, p. 212; July 7, p. 167; Aug. 18, p. 214; Sept. 1, p. 164, 175, 177; Sept. 29—1, p. 152; Oct. 13, p. 230; Nov. 10, p. 234, 263; Nov. 24, p. 174, 192, 202; Dec. 8, p. 254

capitive screw assemblies, Nov. 10, p. 181

inserts, May 12, p. 226, 237; June 23, p. 212; Aug. 4, p. 175; Sept. 29—1, p. 162

multiple function, Dec. 22, p. 118

nuts, Jan. 7, p. 182; March 3, p. 167; March 31, p. 154; April 28, p. 198; May 12, p. 223, 226, 241, 302, 320; June 23, p. 201; Aug. 4, p. 172, 186; Aug. 18, p. 207; Sept. 1, p. 168; Oct. 13, p. 232; Nov. 10, p. 250; Nov. 24, p. 190, 207; Dec. 8, p. 241

pin, Feb. 18, p. 216; Sept. 15, p. 240; Sept. 29—2, p. 72, 142

quick operating, Jan. 7, p. 176; Feb. 4, p. 168, 198; March 3, p. 166; April 14, p. 234; April 28, p. 204; Aug. 4, p. 179; Sept. 1, p. 160; Oct. 13, p. 266; Dec. 8, p. 245

retaining rings, April 28, p. 188

rivet, March 3, p. 172; April 28, p. 190; July 7, p. 157; Nov. 24, p. 199; Dec. 8, p. 238

Fatigue, riveted-joint, Sept. 29—2, p. 30

Fatigue failure, fasteners, Sept. 29—2, p. 93

Fatigue-strength test, Sept. 29—2, p. 95

Feeders, parts, May 26, p. 110; June 9, p. 197; Dec. 8, p. 148

Feedthrough, Nov. 10, p. 296

Fiber, Oct. 27, p. 186

Filter materials, April 28, p. 151

Filters, Feb. 4, p. 174, 190, 193; April 14, p. 202, 257; April 28, p. 197; May 12, p. 235, 238, 314, 438; May 26, p. 113, 178; July 21, p. 232; Sept. 15, p. 285; Nov. 10, p. 255; Dec. 8, p. 252

hydraulic, July 21, p. 147

Fine thread, Sept. 29—2, p. 16, 30

Finishes, protective, Jan. 21, p. 34; Nov. 10, p. 39

Fittings, pipe, tube, hose, Jan. 7, p. 184; March 3, p. 166; March 17, p. 276; April 14, p. 245, 250, 259, 268; April 28, p. 192, 204; May 12, p. 221, 225, 235, 238; June 9, p. 234; Aug. 18, p. 254; Sept. 29—1, p. 164; Oct. 13, p. 238; Dec. 8, p. 239

Flexible printed circuits, March 17, p. 146

Flexures, Feb. 4, p. 114

Fluid couplings, March 31, p. 108

Fluid-flow analysis, March 3, p. 142

Fluted socket, Sept. 29—2, p. 10

Folded fastening, April 28, p. 138

Forgings, April 14, p. 215; May 26, p. 155

Forming, April 28, p. 36; May 12, p. 226, 223, 273; Oct. 13, p. 207

Four-gear combinations, May 26, p. 145

Frearson recess, Sept. 29—2, p. 10

Frequency, vibration, Sept. 29—2, p. 91

Friction materials, Sept. 29—1, p. 141

Fringe infringers, Sept. 29—1, p. 96

Fuel cells, Feb. 18, p. 31

Function generator, Aug. 18, p. 148

Functional tolerancing, Sept. 1, p. 102

Furnaces, May 26, p. 134

Fuses, Nov. 10, p. 41

G

Gage line, rivet, Sept. 29-2, p. 9
 Gages, Feb. 4, p. 214
 hole, Nov. 10, p. 160
 pressure, May 26, p. 113, 196
 Galvanic series, Sept. 29-2, p. 26
 Gas damper, Jan. 7, p. 204
 Gas turbine propulsion, Sept. 1, p. 148
 Gasketed joint, Sept. 29-2, p. 30
 Gaskets, March 31, p. 162; April 14, p. 252; May 12, p. 231, 308; July 21, p. 204; Sept. 29-2, p. 174; Oct. 13, p. 237; Oct. 27, p. 178
 Gearboxes, March 17, p. 267; May 12, p. 228
 Gears, Jan. 7, p. 155; Feb. 18, p. 196; March 17, p. 208; April 14, p. 207, 232; June 9, p. 172; July 7, p. 188; July 21, p. 183; Aug. 18, p. 201; Oct. 13, p. 215, 230; Nov. 24, p. 167, 169; Dec. 8, p. 239; Dec. 22, p. 164, 169
 planetary systems, Sept. 15, p. 190
 Generators, electric, Feb. 4, p. 175, 180; April 14, p. 24; April 28, p. 219; May 12, p. 40, 46, 382; June 9, p. 263; Nov. 10, p. 274; Dec. 8, p. 202
 Geneva mechanisms, design of, Jan. 21, p. 163
 Glass, May 26, p. 166; July 21, p. 41
 Governors, Feb. 4, p. 112; Feb. 18, p. 235; March 31, p. 27; May 12, p. 322, 380; May 26, p. 204; Aug. 18, p. 281
 Graph paper, selection, Nov. 10, p. 173
 Grip ring, Sept. 29-2, p. 82
 Grommets, Oct. 13, p. 232, 260
 Grooves, retaining rings, Sept. 29-2, p. 82, 87
 Grounds, April 14, p. 150

H

Handles, July 7, p. 173; Aug. 4, p. 192
 Hardness test, Sept. 29-2, p. 94
 Head styles, rivet, Sept. 29-2, p. 11
 threaded fasteners, Sept. 29-2, p. 7
 Heading, Aug. 18, p. 185
 Heat exchangers, March 31, p. 171; Oct. 13, p. 213
 Heat treatment of steel, Dec. 22, p. 120
 Heaters, Jan. 21, p. 138; March 17, p. 227; March 31, p. 154; April 14, p. 242; July 21, p. 220; Sept. 15, p. 189, 266
 Heatings, July 21, p. 44
 Helicopters, Dec. 8, p. 44
 Helix angle, Sept. 29-2, p. 10
 Hexagon head, Sept. 29-2, p. 7
 High-strength fasteners, Sept. 29-2, p. 39
 Holding power, set-screw, Sept. 29-2, p. 60
 Honeycomb materials, May 12, p. 308
 Hose,
 metallic, Feb. 4, p. 176; April 14, p. 202, 255; April 28, p. 199; May 12, p. 234; June 9, p. 263; Aug. 18, p. 149, 253; Oct. 13, p. 195
 nonmetallic, Feb. 18, p. 248; March 17, p. 267; May 12, p. 230, 240, 330
 Hospital bed, Oct. 13, p. 176
 Hot-dip coatings, Sept. 29-2, p. 26
 Human engineering, Oct. 27, p. 24; Nov. 10, p. 152; Dec. 22, p. 24
 Human factors design on the bridge, Sept. 1, p. 24
 Human-factors engineering, July 7, p. 30
 Hydraulic fluid, June 23, p. 198; July 7, p. 150; Dec. 8, p. 181
 Hydraulic springs, May 26, p. 114

Impeller, jet-stream, Sept. 29-1, p. 118

Indicators, Oct. 27, p. 180

Inserts, commercial, Sept. 29-2, p. 101, 107

Instruments, Jan. 7, p. 8, 32, 198; Feb. 4, p. 212; Feb. 18, p. 28, 40; March 3, p. 130, 180; March 17, p. 283, 290, 292; March 31, p. 36, 104, 166; April 14, p. 30, 39; April 28, p. 230; May 12, p. 390; May 26, p. 201; June 9, p. 42, 166, 168, 241; July 7, p. 111, 135, 182, 184, 196; July 21, p. 36, 131, 135, 206, 240; Aug. 4, p. 111, 143, 184, 200; Aug. 18, p. 22, 44, 242; Sept. 1, p. 110, 135; Sept. 15, p. 299; Sept. 29-1, p. 100, 101, 102, 120, 180; Oct. 13, p. 157, 304, 308; Oct. 27, p. 115, 134; Nov. 10, p. 30, 41, 300, 302, 304, 306, 308; Nov. 24, p. 118, 119, 141, 142, 215; Dec. 8, p. 148, 150, 168, 171, 274

liquid-level indicator, Jan. 21, p. 123

plotter, Jan. 7, p. 134

Insulation, July 21, p. 219; Aug. 18, p. 228, 251; Nov. 10, p. 250, 288

Insulators, Feb. 18, p. 242; March 17, p. 248, 264, 275; Sept. 15, p. 285

Integrator, mechanical, Jan. 21, p. 154

Interference-fit thread (Class 5), Sept. 29-2, p. 48

Inventions, Jan. 7, p. 36

J

Joint, fuel-tank, Sept. 29-2, p. 62
 water-tight, Sept. 29-2, p. 62

Joint design, Sept. 29-2, p. 28
 bolted, Sept. 29-2, p. 30
 riveted, Sept. 29-2, p. 29

Joint efficiency, Sept. 29-2, p. 30

Joint loading, Sept. 29-2, p. 31

K

Karts, power behind, Aug. 4, p. 24

Knobs, Feb. 18, p. 218, 233; May 26, p. 118; June 23, p. 194; Oct. 27, p. 185; Nov. 10, p. 290; Dec. 8, p. 268

L

Lamps, indicator, Nov. 10, p. 291; Dec. 22, p. 154

Latches, May 12, p. 288; June 9, p. 237; June 23, p. 209; Sept. 29-2, p. 79

Lathe, miniature automatic, Jan. 21, p. 148

Lead, Sept. 29-2, p. 10

Least squares method, May 12, p. 210

Lenses, Nov. 10, p. 42

Linkage dynamics, June 9, p. 173

Linkages, large oscillation, Nov. 10, p. 190

Lighting, Jan. 7, p. 193; March 3, p. 162; March 31, p. 124; April 14, p. 232, 290; May 12, p. 48; May 26, p. 166; June 9, p. 149, 228; Sept. 1, p. 160; Nov. 24, p. 178

Locknuts, Sept. 29-2, p. 51

Locks, May 12, p. 241

Locomotive, electric, Nov. 10, p. 36

Low-temperature properties, March 17, p. 189

Lubricants, Feb. 4, p. 197; Feb. 18, p. 232; March 3, p. 151; March 17, p. 245, 264; March 31, p. 156; April 14, p. 199, 270; May 12, p. 230, 340; May 26, p. 157; June 9, p. 22, 30; June 23, p. 30,

217; July 21, p. 218; Aug. 18, p. 222, 260; Sept. 1, p. 167; Oct. 13, p. 207, 230, 260; Oct. 27, p. 193; Nov. 10, p. 287
solid film, Nov. 10, p. 208

Lubrication,

equipment, Feb. 4, p. 196; April 14, p. 238; May 12, p. 238; May 26, p. 132; Sept. 15, p. 164, 264; Dec. 22, p. 154
systems, Jan. 7, p. 10; Feb. 4, p. 170; June 9, p. 199; Oct. 27, p. 222

M

Machining, electrical discharge, Jan. 7, p. 165

Magnetic mock-ups, July 7, p. 145

Magnets, Jan. 7, p. 164; Feb. 18, p. 172; June 9, p. 216; Dec. 22, p. 146, 154

Major diameters, Sept. 29—2, p. 10

Management, engineering, Nov. 10, p. 28, 36

Materials, Feb. 4, p. 24; Feb. 18, p. 23; March 3, p. 176; April 14, p. 26, 209; June 23, p. 175; Sept. 29—2, p. 18

Materials handling equipment, March 3, p. 128; April 28, p. 154, 156; May 26, p. 32, 42; June 9, p. 28; July 21, p. 157; Dec. 22, p. 128

Measurement, precision, Jan. 21, p. 12, 22

Mechanism design, Nov. 24, p. 122; Dec. 8, p. 174; Dec. 22, p. 110

Mechanisms, large oscillation, Nov. 10, p. 190

Medical engineering, March 3, p. 24

Meetings, Jan. 7, p. 39; Feb. 4, p. 41; Feb. 18, p. 40; March 3, p. 40; March 17, p. 38; March 31, p. 39; April 14, p. 40; April 28, p. 45; May 12, p. 48; May 26, p. 42; June 9, p. 44; June 23, p. 42; July 7, p. 42; Aug. 4, p. 40; Aug. 18, p. 46; Sept. 1, p. 39; Sept. 15, p. 46; Sept. 29—1, p. 36; Oct. 13, p. 47; Oct. 27, p. 40; Dec. 8, p. 47

Metals,

general report, Jan. 7, p. 6

strength of, March 17, p. 28

Metalworking equipment, June 9, p. 169; June 23, p. 198; Aug. 18, p. 167; Sept. 1, p. 137, 138; Nov. 10, p. 185

Meters, Feb. 4, p. 193; April 14, p. 34; May 12, p. 256; May 26, p. 131; Aug. 18, p. 261; Sept. 15, p. 182; Sept. 29—1, p. 104, 122; Nov. 24, p. 41, 144, 218; Dec. 22, p. 108

Microelectric circuits, Nov. 24, p. 160

Microfilm systems, May 26, p. 104

MIL specifications, Sept. 29—2, p. 12, 14

Miniature screw threads, Sept. 29—2, p. 17

Minor diameter, Sept. 29—2, p. 10

Missiles, April 14, p. 22; Aug. 18, p. 25; Sept. 1, p. 23

Mistreatment, analysis, March 3, p. 29

Modular design, Aug. 4, p. 153

Moments of inertia, Dec. 8, p. 189

Motors,

hydraulic, Jan. 7, p. 185; Feb. 4, p. 176; March 3, p. 186; Oct. 27, p. 190; Nov. 24, p. 214
torque, Feb. 18, p. 216; April 14, p. 201; May 12, p. 336; June 23, p. 190; July 7, p. 178; Aug. 4, p. 178; Sept. 1, p. 166

Motors, electric,

fractional and integral hp, Jan. 7, p. 190; Feb. 18, p. 219; March 3, p. 166; March 17, p. 230, 246, 254; March 31, p. 164; April 14, p. 256, 262, 264; May 12, p. 202, 348, 364, 369; June 9, p. 237, 245; June 23, p. 202, 232; July 21, p. 119, 224, 236; Aug. 18, p. 227, 237; Sept. 15, p. 258, 274; Oct. 13, p. 240, 251, 268, 276, 328; Oct. 27, p. 156; Nov. 10, p. 290; Nov. 24, p. 188; Dec. 8, p. 46; Dec. 22, p. 152, 163

gearmotors, March 17, p. 224, 241; May 12, p. 220, 232, 310; June 9, p. 260; Oct. 27, p. 179; Nov. 10, p. 276
subfractional hp, Jan. 7, p. 186; March 31, p. 158; May 26, p. 166; July 7, p. 190; July 21, p. 219; Sept. 29—1, p. 160, 166; Nov. 10, p. 250; Nov. 24, p. 174, 202; Dec. 8, p. 232; Dec. 22, p. 156

synchronous, March 17, p. 202; March 31, p. 161; April 14, p. 238; May 12, p. 293, 354, 378; May 26, p. 176; Aug. 4, p. 189

Mountings,

servo components, March 31, p. 113
vibration and shock, Feb. 4, p. 218; March 17, p. 34; May 12, p. 230, 445; Aug. 18, p. 254; Nov. 24, p. 209

Multiply your effectiveness, Oct. 13, p. 148

N

Nameplates, April 14, p. 241; Dec. 8, p. 266

Nickel, Sept. 29—2, p. 21

Nomograph,

threaded fastener, Sept. 29—2, p. 37
vibration, Sept. 29—2, p. 92

Nonferrous materials, Sept. 29—2, p. 20

Nonmetallic materials, Sept. 29—2, p. 21

Nuclear energy, May 26, p. 40

Nuclear engineering, June 23, p. 23

Nuts,

commercial types,
locking, Sept. 29—2, p. 119
nonlocking, Sept. 29—2, p. 113
locking, application details,
castle, Sept. 29—2, p. 52
free-spinning, Sept. 29—2, p. 52
jam, Sept. 29—2, p. 51
prevailing-torque, Sept. 29—2, p. 52
serrated, Sept. 29—2, p. 52
standard styles, Sept. 29—2, p. 9
thread forms, Sept. 29—2, p. 15

O

One-way driving recess, Sept. 29—2, p. 10

Organic finishes, June 9, p. 136

Oscillographic recorders, Jan. 7, p. 200; Feb. 18, p. 270; July 7, p. 201

Oscilloscopes, Feb. 18, p. 274; Sept. 29—1, p. 180

P

Packaging, pilot, Dec. 8, p. 24

Packaging equipment, Oct. 13, p. 174

Packings, April 28, p. 204; May 12, p. 221, 229, 235, 438; Sept. 29—1, p. 168; Nov. 24, p. 183

Patent owners' rights, June 23, p. 125

Pictorial drawings, Dec. 8, p. 154

Pillow blocks, April 14, p. 249; May 12, p. 220, 225; Sept. 1, p. 178; Oct. 27, p. 198

Pilot holes, tapping screws, Sept. 29—2, p. 45

Pin fasteners,

clevia, Sept. 29—2, p. 71
cotter, Sept. 29—2, p. 71
dowel, Sept. 29—2, p. 71
groove, Sept. 29—2, p. 73
machine, Sept. 29—2, p. 71
quick-release, Sept. 29—2, p. 74
spring, Sept. 29—2, p. 72
taper, Sept. 29—2, p. 71

Pipe, Jan. 7, p. 204; April 14, p. 32

Piston rings, March 17, p. 229

Pitch diameter, Sept. 29—2, p. 10

Pitting, Sept. 29—2, p. 27

Pivoted joint, blind rivet, Sept. 29-2, p. 89

Planetary gear ratios, April 28, p. 161

Plasma flame torch, Oct. 13, p. 172

Plastics, Jan. 21, p. 8, 15, 126; Feb. 4, p. 156, 178, 180, 190; Feb. 18, p. 156, 226, 229; March 3, p. 34, 36, 143, 170; March 31, p. 23, 26, 161; April 14, p. 207, 218, 220, 237, 253, 257, 269; April 28, p. 22, 45, 191, 226; May 12, p. 226, 227, 228, 230, 264, 294; May 26, p. 170; June 9, p. 23, 30, 238, 253, 264; June 23, p. 34, 206, 236; July 7, p. 170; Aug. 4, p. 36, 184; Aug. 18, p. 242, 244, 257; Sept. 1, p. 172, 181; Sept. 15, p. 246; Sept. 29-1, p. 156; Dec. 8, p. 241, 245

creep relaxation, May 12, p. 205

laminates, Feb. 4, p. 196; Feb. 18, p. 243; March 17, p. 260, 276; April 28, p. 218; May 12, p. 306, 385, 386; July 21, p. 219; Aug. 18, p. 224, 239; Sept. 15, p. 289; Oct. 13, p. 252; Nov. 10, p. 278, 295; Nov. 24, p. 205

mechanical joints, March 17, p. 197

metal composites, Jan. 21, p. 26

molding, Jan. 7, p. 34, 36, 194

thermoforming techniques, March 31, p. 142

Plate vibration, Dec. 22, p. 139

Plating, Sept. 29-2, p. 22

Plating-thickness test, Sept. 29-2, p. 94

Plugs, May 12, p. 239; June 9, p. 222; Sept. 15, p. 262; Oct. 13, p. 270, 281

Polyhedrons, May 12, p. 200

Positioner, Jan. 7, p. 176, 180

Potentiometers, Jan. 7, p. 194; Feb. 4, p. 182, 203; March 3, p. 167, 171; March 17, p. 227; April 14, p. 258; April 28, p. 222; May 12, p. 330; June 9, p. 250; June 23, p. 218, 225; July 7, p. 187; July 21, p. 231; Aug. 18, p. 218; Sept. 1, p. 179; Sept. 15, p. 282; Sept. 29-1, p. 154; Oct. 13, p. 282; Oct. 27, p. 188, 194, 198, 202; Nov. 10, p. 262, 297, 29; Nov. 24, p. 187

Powder metallurgy, Jan. 7, p. 35

Powder-metal parts, July 7, p. 112

Power supplies, Jan. 7, p. 201; Feb. 4, p. 206; March 3, p. 189; March 17, p. 284, 290; March 31, p. 146; April 14, p. 273; April 28, p. 228, 232; June 9, p. 268; June 23, p. 239, 240; Sept. 1, p. 181; Oct. 13, p. 278; Nov. 24, p. 30; Dec. 8, p. 244, 273

Prime mover, human, Jan. 21, p. 24

Printed circuits, Jan. 7, p. 161, 178, 196; Feb. 4, p. 23; Feb. 18, p. 230; March 17, p. 224; May 12, p. 23; Sept. 15, p. 242; Nov. 24, p. 121

Processing equipment, Nov. 10, p. 186

Products, new, Jan. 7, p. 23

Product design, Jan. 7, p. 112

Product planning, March 31, p. 94

Programming, Aug. 4, p. 133

Projection welding, Sept. 29-2, p. 65

Proofload, bolts and studs, Sept. 29-2, p. 35

Propulsion, Sept. 1, p. 22

Pulleys, Feb. 4, p. 179; March 17, p. 238; May 12, p. 376; June 9, p. 212; July 21, p. 192; Nov. 10, p. 250, 254, 284

Pumps,

hydraulic, Jan. 7, p. 122, 192; Feb. 4, p. 176, 179, 188, 194, 216; Feb. 18, p. 268; March 17, p. 143, 206, 271, 281; March 31, p. 146; April 14, p. 202, 269; April 28, p. 213, 219, 222; May 12, p. 224, 237, 240, 341; May 26, p. 202; June 9, p. 246; June 23, p. 180, 201, 210, 217, 221, 232, 246; July 7, p. 134, 182, 204; July 21, p. 134, 135, 224, 238; Aug. 4, p. 141, 186, 202; Aug. 18, p. 198, 266, 283; Sept. 1, p. 112; Sept. 29-1, p. 192; Oct. 27, p. 179; Nov. 10, p. 263, 274, 294, 298, 314; Nov. 24, p. 117; Dec. 8, p. 146, 248, 260, 263, 287; Dec. 22, p. 171, 174

pneumatic, Jan. 7, p. 200; Dec. 22, p. 174

Pushbuttons, Feb. 18, p. 222; July 7, p. 168, 174; Oct. 13, p. 36; Nov. 10, p. 116, 197; Dec. 22, p. 156

Quick-operating fasteners, commercial, Sept. 29-2, p. 149
general design data, Sept. 29-2, p. 78
pawl type, Sept. 29-2, p. 79
quarter-turn type, Sept. 29-2, p. 79
sliding latch, Sept. 29-2, p. 79

R

Rack teeth, Nov. 24, p. 145

Radiation, Aug. 4, p. 39

Recorders, Jan. 7, p. 198, 199; Jan. 21, p. 124; Feb. 18, p. 143, 266, 272; March 3, p. 127; March 17, p. 288; March 31, p. 188; May 26, p. 112; June 9, p. 167, 170; July 7, p. 198; July 21, p. 243; Aug. 18, p. 150, 274; Sept. 15, p. 300; Oct. 13, p. 154, 302, 306; Oct. 27, p. 203, 208; Nov. 10, p. 306; Dec. 8, p. 170, 270

Rectifiers, Jan. 7, p. 164; Feb. 4, p. 202; March 3, p. 151; March 17, p. 251; April 14, p. 152; April 28, p. 216; May 12, p. 325; July 21, p. 223; Aug. 4, p. 191
silicone power, Oct. 27, p. 127

Reducers, speed, Feb. 18, p. 256; May 12, p. 220, 233, 235, 341; June 23, p. 198; July 7, p. 180; July 21, p. 196; Aug. 4, p. 191; Oct. 13, p. 244, 258; Nov. 24, p. 206

Regulators,

flow, April 14, p. 263, 294; Aug. 18, p. 240; Nov. 24, p. 199, 230
pressure, March 17, p. 304; April 14, p. 248; April 28, p. 208;
July 21, p. 133; Sept. 1, p. 109; Oct. 27, p. 115; Nov. 24, p. 213
tension, June 23, p. 150
voltage, Feb. 4, p. 192

Relays, Jan. 7, p. 190; Feb. 4, p. 170; Feb. 18, p. 250; March 17, p. 141, 232, 248; April 14, p. 241; May 12, p. 224, 269, 360, 369; June 23, p. 180, 227; July 7, p. 109; Aug. 18, p. 214; Sept. 1, p. 185; Sept. 15, p. 282, 292; Sept. 29-1, p. 34, 184, 196; Oct. 13, p. 159, 287; Nov. 10, p. 163, 254; Dec. 8, p. 262; Dec. 22, p. 162

Reliability, Sept. 15, p. 224
prediction of, Aug. 18, p. 178

Reports, engineering, Jan. 7, p. 164

Resistors, March 17, p. 232, 264; May 12, p. 380; June 23, p. 228, 230; Aug. 18, p. 222, 281; Oct. 13, p. 268, 297; Nov. 10, p. 298, 299; Dec. 8, p. 248; Dec. 22, p. 152, 160

Resonant frequency, Sept. 29-2, p. 91

Retaining rings,

beveled, Sept. 29-2, p. 82
commercial types, Sept. 29-2, p. 169
crescent, Sept. 29-2, p. 82
E-type, Sept. 29-2, p. 82
external clip, Sept. 29-2, p. 86
inverted, Sept. 29-2, p. 82
rectangular section, Sept. 29-2, p. 86
round-section, Sept. 29-2, p. 86
square-section, Sept. 29-2, p. 86
stamped
general design data, Sept. 29-2, p. 81
thrust capacity, Sept. 29-2, p. 83
wire-formed
general design data, Sept. 29-2, p. 85
section shapes, Sept. 29-2, p. 85
thrust capacity, Sept. 29-2, p. 87

Rivets,
 bifurcated, Sept. 29-2, p. 76
 blind, Sept. 29-2, p. 88
 clinch, Sept. 29-2, p. 77
 commercial types, Sept. 29-2, p. 174
 joints, Sept. 29-2, p. 29
 nonstandard head styles, Sept. 29-2, p. 11
 processes, Sept. 29-2, p. 29
 setting machine, Sept. 29-2, p. 75
 shear strength, Sept. 29-2, p. 76
 small, Sept. 29-2, p. 75
 standard head styles, Sept. 29-2, p. 11
 tubular, Sept. 29-2, p. 76

Rockets, April 28, p. 26; July 7, p. 23; Sept. 29-1, p. 22

Rolling surfaces, Oct. 13, p. 189

Rolls, Nov. 10, p. 316

Rotary joints, March 3, p. 186; March 17, p. 242; July 7, p. 132; Aug. 18, p. 284; Sept. 1, p. 165; Oct. 13, p. 275

Rotation, positioning, Jan. 7, p. 116

Rubber, March 17, p. 258; March 31, p. 163; April 28, p. 198, 218; May 12, p. 222; Oct. 13, p. 266

Runout, Sept. 29-2, p. 48

S

Satellites, Sept. 15, p. 41; Oct. 13, p. 40; Dec. 22, p. 28, 30

Screws,
 drive, Sept. 29-2, p. 9, 45, 46
 power, May 12, p. 240; Oct. 13, p. 232
 tapping, March 3, p. 114

Screw-thread forms, Sept. 29-2, p. 15

Sealing fasteners, Sept. 29-2, p. 62

Seals, Jan. 7, p. 144, 204, 206; Feb. 18, p. 190, 306; March 17, p. 306; March 31, p. 154; April 14, p. 201; May 12, p. 243, 275, 290, 294, 440, 444; May 26, p. 166, 201; June 23, p. 204; July 7, p. 164, 172, 184; Aug. 4, p. 193; Aug. 18, p. 214, 254, 282; Sept. 1, p. 185; Sept. 15, p. 163, 242; Nov. 10, p. 270; Nov. 24, p. 168, 226; Dec. 8, p. 234, 283; Dec. 22, p. 159, 163, 172
 mechanical, March 3, p. 106; March 17, p. 303; Aug. 18, p. 236; Sept. 29-1, p. 190, 194

Sealants, Jan. 7, p. 187

Seats, design of, Nov. 10, p. 152

Servo circuits, Jan. 7, p. 139

Servos, Nov. 10, p. 161, 305; Dec. 8, p. 194

Set screws,
 forms, Sept. 29-2, p. 59
 general design data, Sept. 29-2, p. 58
 holding power, Sept. 29-2, p. 59
 retention methods, Sept. 29-2, p. 61
 size selection, Sept. 29-2, p. 58
 standard points, Sept. 29-2, p. 59

Setting-machine, rivet, Sept. 29-2, p. 75

Shafts, Feb. 4, p. 158; Feb. 18, p. 264; Oct. 13, p. 334; Nov. 10, p. 260
 flexible, June 23, 231, 250; Oct. 27, p. 190; Nov. 24, p. 138; Dec. 22, p. 162

Shapes, special, Aug. 18, p. 220

Shear planes, Sept. 29-2, p. 29

Shear strength test, Sept. 29-2, p. 95

Shear and tension load, combined, Sept. 29-2, p. 42

Shear test fixture, Sept. 29-2, p. 94

Sheaves, Feb. 4, p. 179; May 12, p. 232; June 9, p. 223

Shims, Sept. 1, p. 170

Ships, air-cushion, July 7, p. 24

Shipyards, March 31, p. 24

Shock absorbers, May 12, p. 226; Oct. 13, p. 156; Dec. 22, p. 32

Shock waves, Sept. 15, p. 225

Silicones, Aug. 4, p. 192, 193; Nov. 10, p. 277

Simple assembly, Oct. 13, p. 187

Simple shear load, Sept. 29-2, p. 42

Simple tension load, Sept. 29-2, p. 49

Slider-crank whip, Aug. 4, p. 144

Slip rings, Jan. 7, p. 154, 185; March 17, p. 245

Small parts, Nov. 10, p. 291

Snap rings, Sept. 29-2, p. 86

Solar cells, Jan. 7, p. 180

Solenoids, Feb. 4, p. 168; Oct. 27, p. 183

Spanner head, Sept. 29-2, p. 10

Specific speed, Oct. 27, p. 117

Speeding product development, April 14, p. 144

Spending for product development, Dec. 22, p. 94

Spindles, May 12, p. 374

Splines,
 ball-bearing, Feb. 4, p. 168; Oct. 27, p. 216
 nylon, Nov. 10, p. 162

Spotweld electrode tip diameters, Sept. 29-2, p. 65

Spray gun, Nov. 10, p. 184

Spring system, Dec. 22, p. 126
 zero gradient, Jan. 21, p. 143

Springs, Jan. 7, p. 188; Jan. 21, p. 23; April 14, p. 210, 249, 294; May 12, p. 177, 228, 300; June 9, p. 212, 231; Sept. 29-1, p. 34; Oct. 13, p. 272; Dec. 22, p. 174

Sprockets, July 21, p. 183

Stainless steel, Sept. 29-2, p. 24

Stampings, June 23, p. 32

Standards, Jan. 7, p. 22

Standoff thumb screw, Sept. 29-2, p. 79

Star fracture, Sept. 29-2, p. 93

Starters, motor, Jan. 21, p. 30; July 21, p. 224; Sept. 29-1, p. 178

Static failure, Sept. 29-2, p. 93

Static-control shift registers, June 23, p. 141

Steel, April 14, p. 261; May 12, p. 43, 271; July 21, p. 31; Sept. 1, p. 154, 179; Sept. 15, p. 221; Sept. 29-1, p. 34; Sept. 29-2, p. 19; Oct. 13, p. 208, 210
 heat treatment, Dec. 8, p. 160
 high-strength, Feb. 4, p. 120; July 21, p. 174
 liners, Sept. 1, p. 117
 stainless, April 28, p. 42; May 26, p. 32; Aug. 4, p. 27, 178; Oct. 13, p. 211

Steeple head, Sept. 29-2, p. 11

Stop devices, Oct. 27, p. 144

Stray current corrosion, Sept. 29-2, p. 27

Stress corrosion, Sept. 29-2, p. 27

Stress rupture, Sept. 29-2, p. 93

Studs,
 classes, Sept. 29-2, p. 49
 general design data, Sept. 29-2, p. 48
 shear strength, Sept. 29-2, p. 35
 special locking types, Sept. 29-2, p. 49

Switches, Jan. 7, p. 179, 187, 189, 197; Feb. 4, p. 177, 188, 190, 197, 199; Feb. 18, p. 216, 219, 243; March 3, p. 163, 170, 174; March 17, p. 143, 144, 224, 256, 271; March 31, p. 162; April 14, p. 175, 232, 239, 253, 266; April 28, p. 126, 127, 129, 199, 213, 223; May 12, p. 222, 229, 230, 234, 288, 340, 343, 351, 364, 371, 388, 442; May 26, p. 172; June 9, p. 150, 248, 260; June 23, p. 190, 206, 209, 218, 232, 246, 251; July 7, p. 171, 174, 178, 188, 192; July 21, p. 204, 216, 228; Aug. 4, p. 112, 180, 182, 200; Aug. 18, p. 224, 227, 233, 260, 264; Sept. 1, p. 111; Sept. 15, p. 257, 274, 278, 286; Sept. 29-1, p. 162, 173; Oct. 13, p. 234, 246, 257, 262, 296; Oct. 27, p. 116, 193, 202, 220; Nov. 10, p. 187, 264, 271, 280, 287, 288, 294, 296, 318; Nov. 24, p. 190, 201, 209; Dec. 8, p. 242, 244, 247, 251; Dec. 22, p. 107, 152, 156, 158

Systems,
 electromechanical, April 28, p. 180
 guidance, July 21, p. 158

hydraulic, Feb. 4, p. 155; March 3, p. 148; March 17, p. 160; April 14, p. 176; May 26, p. 22; June 23, p. 128; Oct. 13, p. 212; Dec. 22, p. 147
 mechanical, April 28, p. 240
 pneumatic, Jan. 21, p. 171; Feb. 18, p. 144; April 28, p. 30; June 23, p. 120, 146
 pneumatic-power, July 7, p. 123

T

Tank joints, Sept. 29-2, p. 62
 Tape, Feb. 18, p. 225, 238; May 12, p. 306; June 9, p. 233; June 23, p. 39; July 21, p. 231; Sept. 29-1, p. 176

Tapping screws, Sept. 29-2, p. 45

Telephones, June 9, p. 171

Tensile strength, bolts and studs, Sept. 29-2, p. 35

Tensile-test fixture, Sept. 29-2, p. 94

Tension failure, Sept. 29-2, p. 93

Tension load, circular base, Sept. 29-2, p. 41

Tension load from moment, Sept. 29-2, p. 40

Terminals, Feb. 18, p. 230, 240; March 17, p. 246; April 14, p. 255; June 9, p. 214; Oct. 13, p. 249; Nov. 10, p. 278; Dec. 8, p. 247

Testing, Feb. 4, p. 6, 22, 41; March 17, p. 171; March 31, p. 128; May 26, p. 200; Sept. 29-2, p. 94, 95; Nov. 10, p. 300

Testing,

fatigue, Jan. 7, p. 124

high heat rates, Jan. 21, p. 138

impact, Jan. 7, p. 124

inertia-sensitive devices, March 31, p. 130

wind tunnel, Jan. 7, p. 12

Thermal conductant, Sept. 15, p. 166

Thermal stresses, March 31, p. 141

Thermal stress in design, June 9, p. 159; June 23, p. 153; July 7, p. 139; July 21, p. 161; Aug. 4, p. 129; Aug. 18, p. 160

Thermistor, Feb. 4, p. 192

Thermocouples, Feb. 18, p. 260; March 17, p. 236; May 12, p. 273; June 9, p. 184, 250; June 23, p. 179; Sept. 1, p. 111; Sept. 15, p. 328; Nov. 10, p. 284, 314

Thermometers, July 7, p. 109; Sept. 1, p. 109; Sept. 15, p. 240; Oct. 13, p. 338

Thermostats, Feb. 18, p. 258; March 3, p. 158; March 17, p. 238; April 28, p. 104; May 26, p. 159, 180; June 9, p. 253; June 23, p. 202, 204; July 7, p. 182; July 21, p. 209, 218; Aug. 4, p. 188; Sept. 1, p. 136; Dec. 8, p. 253; Dec. 22, p. 180

Thread,

buttress, Sept. 29-2, p. 6

check, Sept. 29-2, p. 94

class, Sept. 29-2, p. 6

cutting tapping screw, Sept. 29-2, p. 46

flank, Sept. 29-2, p. 9

forming tapping screw, Sept. 29-2, p. 46

series, Sept. 29-2, p. 11, 16

stripping, Sept. 29-2, p. 93

unified, Sept. 29-2, p. 15, 16, 17

Threads, coarse or fine, March 17, p. 134

Tilted rotating discs, Dec. 8, p. 184

Timers, Feb. 18, p. 252; March 17, p. 256; May 26, p. 175; July 7, p. 190; Aug. 4, p. 172; Aug. 18, p. 147, 244; Sept. 1, p. 118; Sept. 15, p. 260; Sept. 29-1, p. 170; Oct. 13, p. 158; Dec. 8, p. 254, 268

Titanium and alloys, May 26, p. 42

Tolerancing with schematics, Oct. 13, p. 183

Torches, high temperature, Jan. 21, p. 31, 36

Torque,

coefficients, Sept. 29-2, p. 33, 34

screw tightening, Oct. 13, p. 179

tapping screws, Sept. 29-2, p. 45

testing, Sept. 29-2, p. 95

values, bolts, Sept. 29-2, p. 32, 38

Torsion failure, Sept. 29-2, p. 93

Toys, Nov. 24, p. 24

Trade secrets, March 31, p. 105

Training engineers, Dec. 8, p. 140

Transducers, Feb. 18, p. 37; June 9, p. 268; June 23, p. 36; July 21, p. 242, 250; Aug. 4, p. 35, 110; Sept. 1, p. 180; Sept. 15, p. 255; Sept. 29-1, p. 184; Oct. 13, p. 300; Oct. 27, p. 222; Dec. 8, p. 269; Dec. 22, p. 164

Transformers, March 17, p. 281; Aug. 4, p. 183

Transistors, Jan. 7, p. 183; Feb. 18, p. 232; March 3, p. 23; May 12, p. 304, 338, 356; July 7, p. 23; July 21, p. 200, 236; Aug. 4, p. 30; Sept. 1, p. 174; Sept. 15, p. 255, 262; Oct. 13, p. 22, 238; Nov. 10, p. 292, 295

Transmission, adjustable speed, Jan. 7, p. 30, 121, 176; March 31, p. 123; April 14, p. 270; May 12, p. 229, 231, 318; June 9, p. 254; July 21, p. 253; Oct. 27, p. 133; Nov. 10, p. 267; Dec. 8, p. 149

Tubes, electronic, Jan. 7, p. 23

Tube-producing machine, Feb. 4, p. 126

Tubing, Feb. 4, p. 194; Feb. 18, p. 226; March 31, p. 160; April 14, p. 233; June 9, p. 216, 222, 254; June 23, p. 196; July 7, p. 171, 179; Aug. 18, p. 231, 264; Oct. 27, p. 178; Nov. 10, p. 268

Tubular shaft design, Sept. 29-1, p. 128

Turbines, May 12, p. 178; Sept. 1, p. 186; Oct. 13, p. 216

Twelve-point head, Sept. 29-2, p. 7

U

Unified screw thread, Sept. 29-2, p. 11, 15, 16, 17

Unions, Nov. 24, p. 32; Dec. 8, p. 32

Universal joints, Feb. 4, p. 168; Aug. 18, p. 216; Nov. 24, p. 226; Dec. 22, p. 154

V

Valves,

hydraulic, Jan. 7, p. 182, 196, 197; Feb. 4, p. 174, 197, 212, 216, 219; Feb. 18, p. 238, 240, 244, 247, 250, 261, 262, 310, 376; March 3, p. 103, 161, 172, 176, 179, 187; March 17, p. 229, 252, 262, 303, 304; March 31, p. 159, 163; April 14, p. 236, 250, 260, 262; April 28, p. 194, 223; May 12, p. 221, 231, 232, 239, 297, 304, 343, 348, 356, 355, 388; May 26, p. 168, 202; June 9, p. 220, 233, 242, 256; June 23, p. 190, 205, 229, 230, 250; July 7, p. 175, 176; July 21, p. 180, 204, 215, 218, 220, 235, 254, 252; Aug. 4, p. 201; Aug. 18, p. 248, 260, 261, 266; Sept. 1, p. 160, 163, 168, 174, 177; Sept. 15, p. 240, 244, 248, 257, 271, 278, 280, 295; Sept. 29-1, p. 152, 170, 196; Oct. 13, p. 155, 213, 234, 262, 272, 276, 292, 295, 298, 336; Oct. 27, p. 183, 194, 196, 197, 214; Nov. 10, p. 250, 266, 270, 279, 314; Nov. 24, p. 184, 194, 205, 206, 210, 224; Dec. 8, p. 236, 243, 253, 286, 290; Dec. 22, p. 171; pneumatic, Jan. 7, p. 176, 182, 195, 196; Feb. 4, p. 170, 174, 186; Feb. 18, p. 229, 244; March 3, p. 178; March 17, p. 302; April 14, p. 267, 274; May 12, p. 221, 288, 290, 360, 366; May 26, p. 175; June 23, p. 206, 210, 280; July 7, p. 173, 175; July 21, p. 194, 215, 218, 228; Aug. 4, p. 175, 198; Aug. 18, p. 170, 266; Sept. 15, p. 165, 267, 278, 286; Sept. 29-1, p. 192; Oct. 13, p. 282; Oct. 27, p. 183; Nov. 10, p. 266, 270; Nov. 24, p. 214; Dec. 8, p. 266

Vanadium, June 23, p. 22

Vehicles, Feb. 4, p. 32; March 3, p. 36; March 31, p. 32; April 14, p. 23, 31

compaction trailer, Feb. 4, p. 128

mobility of, Jan. 21, p. 156; Feb. 4, p. 133; Feb. 18, p. 130

off road, Jan. 7, p. 145

Vibration, Sept. 29-2, p. 91

Vibration analysis, Feb. 4, p. 133

simplified, March 3, p. 134; March 17, p. 180; March 31, p. 116; April 14, p. 170, April 28, p. 141; May 26, p. 135

Vibration beam, Nov. 10, p. 205

Vibration isolation design, Aug. 4, p. 123

Vibration test, Sept. 29-2, p. 95

Vibrator, Sept. 29, p. 190

Vinyls, July 21, p. 142

W, Y

Washers, March 31, p. 156; Dec. 8, p. 235

conical, Sept. 29-2, p. 54

general design data, Sept. 29-2, p. 54

helical-spring locking, Sept. 29-2, p. 55

plain, Sept. 29-2, p. 54

special-purpose, Sept. 29-2, p. 57

spring, Sept. 29-2, p. 53

toothed locking, Sept. 29-2, p. 56

Watches, Oct. 27, p. 30

Water-tight joints, Sept. 29-2, p. 62

Weatherproof joint, blind rivet, Sept. 29-2, p. 89

Weight and volume, calculating, June 9, p. 185

Weld fasteners, Sept. 29-2, p. 65

Welding, Feb. 4, p. 30, 156; April 14, p. 154; May 12, p. 23; June 9, p. 189; June 23, p. 177; July 21, p. 26; Sept. 15, p. 210

Welding processes, Sept. 29-2, p. 65

Weldments, lathe bed, Jan. 21, p. 153

Whitworth standard thread, Sept. 29-2, p. 11

Wire and wire products, Jan. 21, p. 23; May 12, p. 320; Aug. 18, p. 218; Sept. 1, p. 165; Sept. 29-1, p. 152; Oct. 13, p. 234; Nov. 24, p. 180; Dec. 8, p. 237; Dec. 22, p. 154

Wrench clearance, Sept. 29-2, p. 34

Yttrium, Jan. 7, p. 22

1959 DATA SHEETS INCLUDE:

Helical and Bevel Gears
By Donald J. Myatt
Point-Position Reduction
By C. Wesley Allen
Disc-Cam Curvature
By J. Hirschhorn
Helical-Spring Design
By J. Hirschhorn
Preferred Pinion Sizes
By Gustav A. Larson
Thin-Walled Circular Beams
By H. D. Tabakman
Simplified Column Design
By Helmut G. Hoeschel
Plastics At High Temperatures
By J. Chottiner
Geneva Drive Rollers
By Charles Tiplitz
Thermostatic Bimetals
By C. F. Alban and C. C. Perry
Moment Grids
By Jacob Herrmann
Minimizing Maximum Beam Moments
By B. Saelman and L. C. Coombs
Control Identification
By Joseph L. Seminara
Minimizing Maximum Beam Deflection
By B. Saelman
Curved-End Cantilevers
By Alexander Blake
Nonstandard Gears
By John H. Glover
Round-Section Beams
By Charles W. Bert
Optimum Sections of Tubular Columns
By B. Saelman
New Property Values for Vulcanized Fiber
By R. W. Wilhelm
Viscosity and Lubricants
By Harry C. Rippel
Trig-Type Cam Profiles
By C. N. Nekultin
Sleeve-Bearing Bronzes
(Cast Bronze Bearing Institute)
Wall Thickness of Pressure Vessels
By Allan W. Gilman
Solving Equations
By John P. Hatch
Stress and Deflection in Shafts
By V. J. Lopardo and W. M. Lee
Minimum-Weight Tubular Members
By B. Saelman

BASIC ENGINEERING HELP FROM

MACHINE DESIGN

NOW READY

1959 Data Sheets

**PLUS—a cumulative index
of all 1956-1959 Data Sheets**

Twenty-six reference articles of valuable design techniques published in the 1959 issues of **MACHINE DESIGN** are included in a new 135-page reprint now available. Each data sheet begins on a right-hand page for clipping ease without destroying other pages. Prepared with your personal file of engineering information in mind, each volume contains a four-year index of published data sheets available.

Price is \$2.00 each, including postage

These worthwhile data sheets offer a unique collection of basic design assistance. Order your personal or departmental copy today. Use the convenient form below for prompt processing.

(Remittance or Company Purchase
Order must be enclosed with order)

MACHINE DESIGN**Reader Service Department
Penton Building
Cleveland 13, Ohio**Please send me copies of the 1959 Data Sheets @ \$2.00 eachName Company City Zone State

(Add 3% to orders in Ohio to cover State Sales Tax)